JULY 5, 1961

GAS IN INDUSTRY

Supplement to the "GAS JOURNAL"

Vol. 4 No. 38

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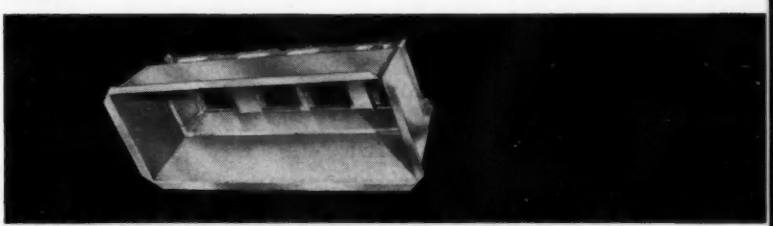

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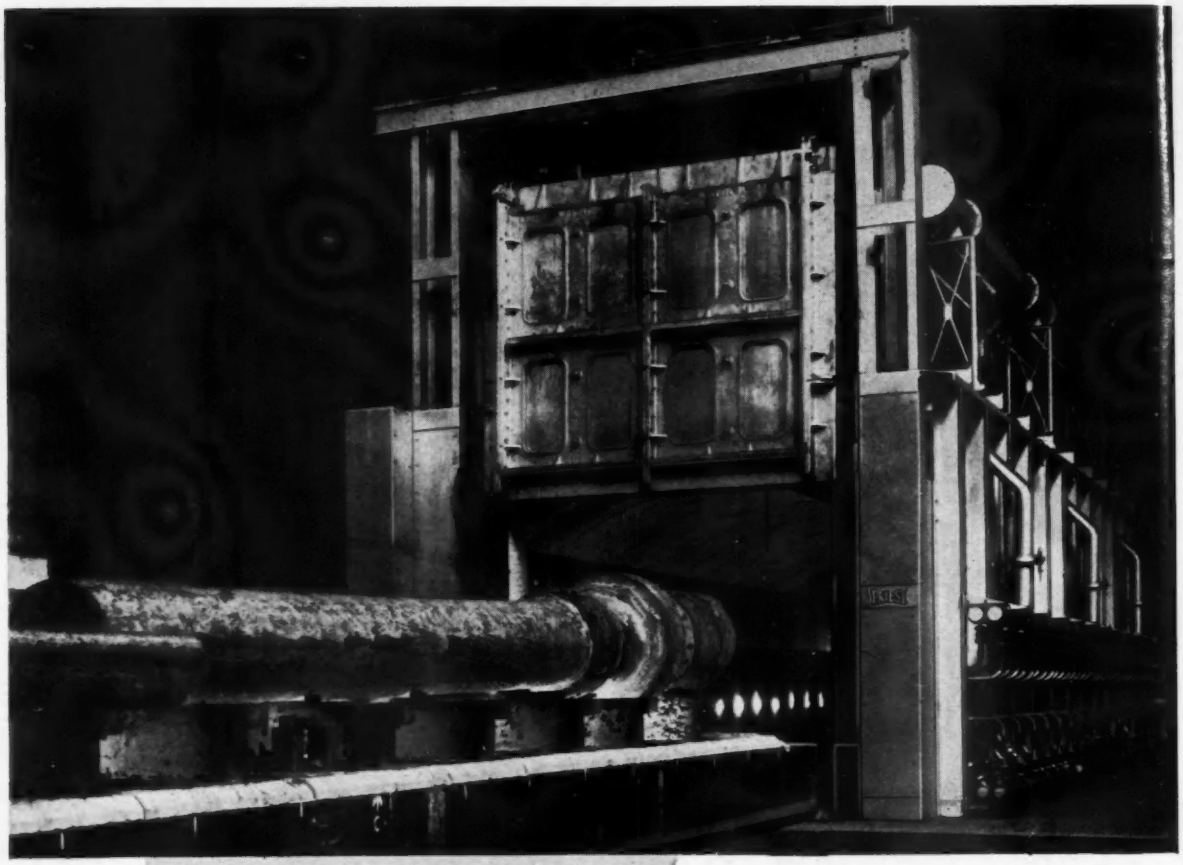

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GAS IN INDUSTRY

JULY 1961

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WONDERLOAF BAKERS USE GAS
By Eric Ford

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STREAMLINED CATERING AT MORRIS MOTORS
By Margaret Parkinson

NITROGEN AND HYDROGEN PLANTS

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Editorial

Gas bakes our daily bread

IT has long been the proud claim of the gas industry that it serves virtually every 'basic' industry in the British Isles. Nothing could be much more basic than our daily bread, a very large proportion of which is baked by gas—the fuel which is recognised throughout the baking trade as being ideal for the job. Why? Because it is reliable, easily controlled, infinitely flexible, requires no storage, does not contaminate by smell, and presents no maintenance problems. Most of these advantages are obvious enough. Many bakeries lack the space to store solid or liquid fuel, and recognise the possibility of contamination by oil. The fact that refractories last longer in a gas oven means that inconvenience caused by rebricking is cut to a minimum—a very important point in cases where a bakery has only one or two ovens. Moreover, the simplicity of the gas installation frees the smaller baker from worries concerning such things as maintenance to burners.

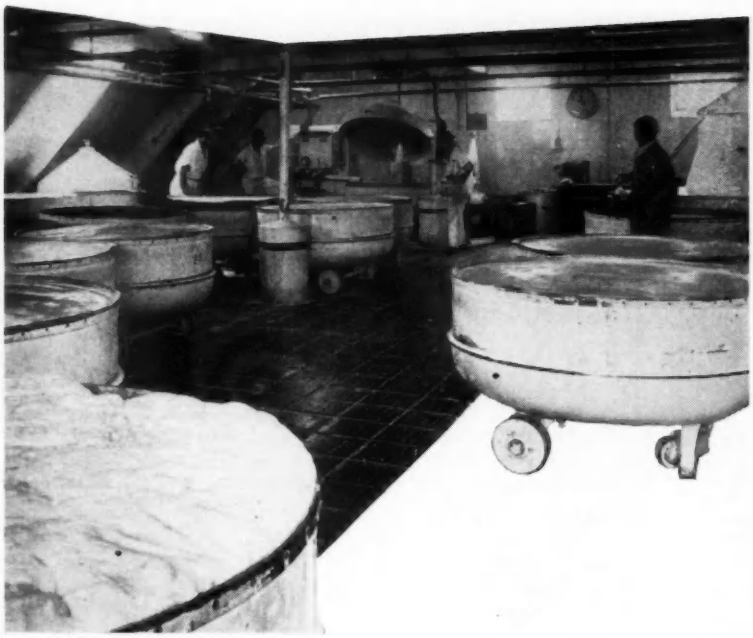
For all these reasons gas is the favourite fuel of the bakery trade. Only among some of the large plant bakeries has gas lost business because—let us face it—oil can often do the job more cheaply. Here the baking operation is more likely to be viewed through the eyes of the accountant, and with finer profit margins to consider gas has with reluctance been displaced in favour of oil. Even so it is a measure of the popularity of gas for this purpose that many plant bakeries still use gas, even though it may have a substantial price disadvantage. A case in point is the Wonder Baking Co. Ltd., which is the subject of a special article in this issue of *Gas in Industry*. Here, at one of the largest baking plants in the United Kingdom, comprising five baking lines, each with a capacity of six sacks of flour per hour, each baking line includes an automatic gas-fired oven. One of the ovens at Wood Green has been running continuously for 12 years without relining.

In contrast to bread baking, firms specialising in pie and confectionery baking on a large scale usually enjoy a larger profit margin for their products; for them gas is the first choice.

When one considers the small bakeries any price disadvantage gas may suffer is outweighed by its many advantages, and Britain's family bakers have clearly demonstrated their preference for this most convenient of fuels.

An interesting aspect of the bakery trade is that, following the success of the large plant bakeries in winning business from the small family bakers (who have either been forced out of business or who have given up bread baking), there has emerged, in some parts of the country, a somewhat larger version of the family baker who has stuck to the traditional methods and has continued to make a crusty type of loaf which has been sold to other, smaller bakers. These enterprising concerns have retained the smaller ovens, used in series, and have incorporated newer ideas like the reel oven, and a German device which permits rapid charging. Refrigeration has been employed to store rolls and confectionery.

These bakeries are operated by enterprising businessmen who give the job their personal supervision. They cannot afford to employ engineers, to countenance holdups, or to allocate valuable space to storage. For them gas is the ideal fuel.



These dough bowls are waiting their turns to deposit their contents through chutes to the baking lines in the bakery below. Note the clean and hygienic appearance of this department, typical of the Wonder Baking Co.'s installations.

ERIC FORD SEES HOW BREAD IS MADE

Wonderloaf bakers use gas—'turn on the tap and there's your fuel . . . . .'

FASHIONS in food may change but bread still retains the position it has held down the ages as the most important constituent of the diet of all civilised peoples. The methods by which bread is made and, more particularly perhaps, the way in which it is presented, have changed through the years and one of the most important features of recent times has been the increasing popularity of the wrapped, sliced loaf.

One of the best known products in this field is the Wonderloaf, produced by the Wonder Baking Co. Ltd., which introduced this product to the London area when it set up its first baking plant in Wood Green in 1936.

Today, the Company operates a number of London plants, as well as very many others in all parts of the United Kingdom, producing many millions of loaves a week, of which about 90% are sold sliced and wrapped.

All this bread is produced in large, up-to-date and highly mechanised baking plants, using continuous methods which incorporate a considerable number of gas-fired ovens.

Among the advantages which the Company sees in gas as a fuel for baking are its cleanliness and the fact that the actual supply is automatic, requiring no storage facilities and obviating the periodical task of receiving and handling fresh supplies of fuel.

'You turn on the tap—and there is your fuel supply,' as one Company representative put it. Gas-fired equipment also scores in respect of maintenance and length of working life.

One of the gas-fired ovens in use at the Wonder Baking Co.'s Wood Green plant has been in continuous use for 12 years and has never had to be relined during that period.

This plant, which occupies extensive premises in White Hart Lane, Wood Green, London, N.22, is one of the largest baking plants in the United Kingdom, comprising five baking lines, each with a capacity of six sacks of flour (280 lbs. each) per hour.

Each baking line includes a Baker-Perkins gas-fired oven which is automatic in operation.

Gas for this plant, which has an average annual consumption of about half-a-million therms, is supplied by the Tottenham Division of the Eastern Gas Board.

But before the gas-fired ovens come into operation a great deal of skilful work is necessary on the part of the bakery staff.

Flour arrives at the plant in road tankers (apart from a small proportion for special purposes, which is delivered in sacks) and is pumped into one of eight silos, each of which has a capacity of 30 tons.

These silos are housed in a well-designed building which is exceptionally well laid out inside, with all the necessary equipment for maintaining the correct temperature at all seasons of the year and for the automatic handling of flour from tankers and to the baking plant.

Flour and the other ingredients of bread are mixed in batches containing 560 lbs. of flour and appropriate quantities of yeast, enriching ingredients, salt and water at the correct temperature.

The measurement of the dry ingredients is effected entirely automatically, the control panel resembling the bridge of a modern liner.

By means of a system of electronic

controls, the operator, at the pressing of a switch, can select the bin from which the flour should be drawn and a system of lights enables him to see which bin is discharging the flour at the time.

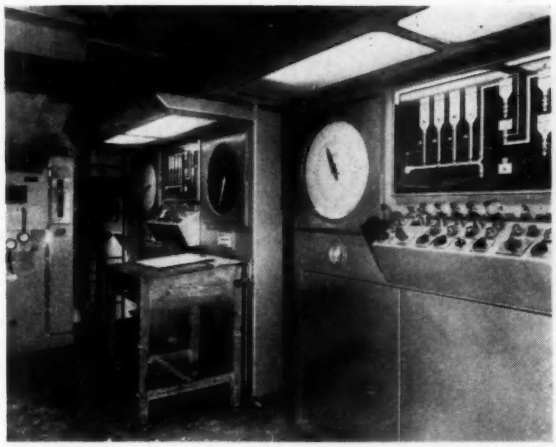
All these operations at the Wood Green plant take place on an upper floor where all the equipment, like everything else at the Wonder Bakery, gives an immediate impression of scrupulous cleanliness.

On the floors below are sited the five baking lines which are supplied with dough from the upper floor through chutes.

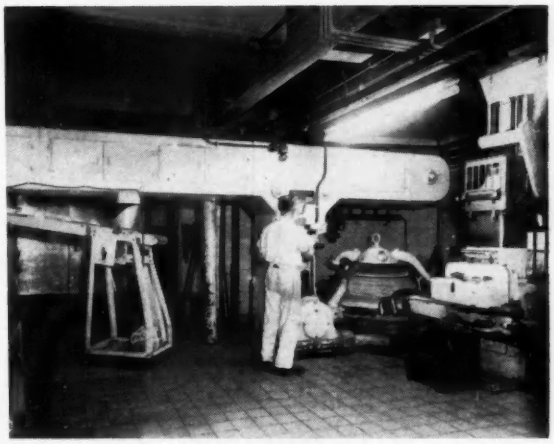
The wheeled container, known as a dough bowl, with the mixed dough inside is positioned in the tipping apparatus which inclines the container sufficiently to allow the dough to slide down to the dough-divider below.

This ingenious machine weighs off portions of dough of the size required, depending on the loaf being made, and gives the dough-pieces their first moulding.

Another device, known as a 'hander-up' and consisting essentially of a revolving cone, conveys the dough pieces into nylon containers, fixed on moving belts, which carry the dough through the first prover.



By means of these neatly arranged controls, animated diagrams and meters, accurately measured quantities of flour are automatically transferred from the pre-selected silo to the appropriate mixing machine.



After being cut into the correct size, the dough pieces are fed through the cone-shaped 'hander-up' into the first prover.

This is kept at normal room temperature and when the dough pieces leave it, they are once again moulded, to emerge in a shape nearer to that of the final loaf.

Now, for the first time, the dough pieces are touched by human hand but only to be placed in pans ready for final proving.

This takes place in humid heat, the necessary conditions being produced by the use of both wet and dry steam as required. Having circulated through the final prover, in their baking pans, the dough pieces are then ready to enter the oven.

All this equipment, right from the initial weighing operation, is so arranged that the dough reaches the oven by means of a flow process and the variety of equipment needed has been ingeniously sited to make flow process methods possible.

For example, the dough pieces

Off to the customer! Bread, sliced and wrapped, is stacked on ingenious stands with detachable trays and wheeled into the delivery vehicle. This method makes for speed and efficiency, enabling bread to arrive at the customer's door fresh from the bakery.

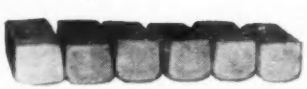
Part of the Baker Perkins 60-ft. travelling plate oven. Fuel for this gas - fired oven is supplied by the Eastern Gas Board.

This picture, showing the gallery between the two Baker Perkins Uniflow ovens, indicates the neat layout of these two ovens. The burner arrangements are also clearly shown.

leave the final prover at a point near the mouth of the oven so that the pans can be transferred from prover to oven with the minimum amount of handling and delay.

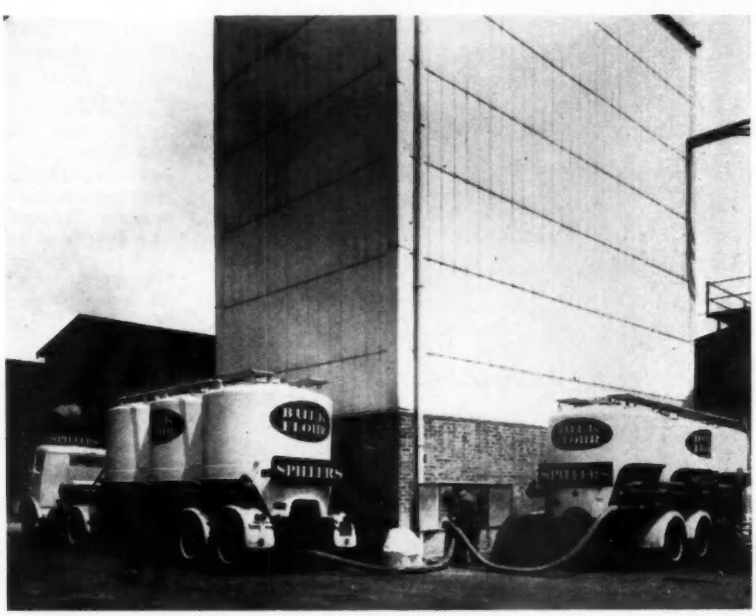
All five ovens are 60-ft. in length and are of the travelling plate type, manufactured by Baker Perkins, and fired by gas. Though basically of the same type, the ovens have been installed at different times and differ slightly in detail.

General requirements for the continuous plate oven of this type include the deployment of the heat, which must be below the pans of dough at the commencement of the baking time but above them towards the final stages.



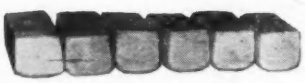
The disposition of the heat in these ovens is effected by steam tubes and by the use of dampers. Another important point which applies to all these ovens is the spraying of steam over the pans in the early stages of their progress through the oven.

Supplies of high grade flour arrive by road tanker and are pneumatically unloaded into one of the eight 30-ton silos.



The object of this is to give the top of the loaf that nicely browned appearance and a crust which is so attractive to the palate.

On the most recently installed of the five ovens, the heat from the induced draft burners heats the baking chamber by radiation and convection from ductwork systems within the chamber.



There are two burners, the hot products from which are drawn through these ducts to supply the heat. The products of combustion themselves, of course, do not enter the baking chamber.

A chain-wire conveyor belt has been fitted to this oven instead of the more usual travelling plate. This has a number of advantages as compared with a plate, including lower heat losses.

A variable speed motor drives the travelling belt, the time taken for an individual loaf to pass through the oven varying with the type of product but, generally speaking, it takes between 30 and 45 minutes.

Gas supply to this oven passes through a filter and Bryan Donkin governor to regulate the pressure, all this equipment being sited on top of the oven. Very comprehensive safety devices are built into the oven, covering gas and air supply by a system of magnetic and diaphragm valves.

In the event of a failure, supplies are cut off and a bell gives an audible alarm. Red lights indicate that the

oven is operating normally, and these lights go out in the event of failure, thus providing a visual alarm as well.

Electroflo controllers are attached to this oven, the meters being incorporated in a neat panel at the delivery end of the oven. Temperatures at different sections of the oven necessarily vary with the type of bread passing through, but an average operating temperature would be around 500°F.

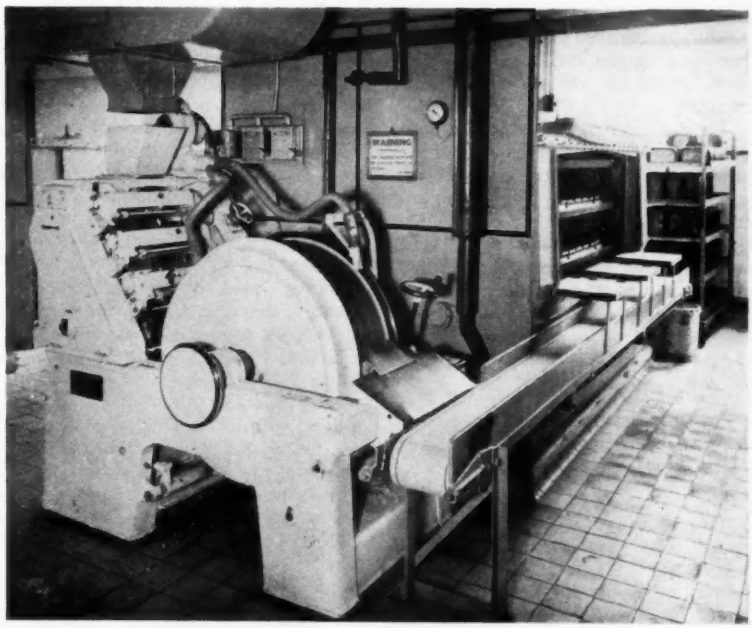
The disposition of the heat in the oven is controlled by dampers and this is one of the variables which is decided by the bakery supervisor.

It is of interest to learn that in spite of the arrival of industrial flow process methods in the ancient craft of bread-making, the skill of the baker still takes command at the baking stage.

While it is true that he has an efficient source of heat which is flexible and easy to control and well-designed ovens with every convenience to hand, the baker still has to determine the temperature he will employ, the way he will set his dampers, and the time taken for the bread to pass through the oven.

The human element, it appears, is just as important today as at any time in the long history of bread.

A good impression of the clean and attractive layout of a Wonder Baking Co. baking line is gained from this photograph.



This piece of equipment, known as a moulder, brings the piece of dough up to its final shape in readiness for final proving and baking.

As they leave the oven, the loaves are tipped out of the pans, which are returned via a conveyor to the prover, where they are lightly oiled ready to receive their next consignment of dough.

The loaves, meanwhile, are placed on another conveyor which takes them out of the baking department to the wrapping section. At this point, however, the bread is hot and, in fact, a three-hour cooling period is allowed before slicing and wrapping takes place.

Automatic machines receive the loaves, cut them in slices, present them to the built-in wrapping mechanism which wraps and seals them.

Equipment has been devised for heat-sealing polythene wrapping covers. The very latest machine for this purpose is included in the Wonder Baking Company's bread wrapping department.

This department has been so designed that the Company's delivery vans, in the bright colours which make them easily recognisable in town or country, can back in close to the wrapping machines.

The bread is taken straight off the production line and into the van for delivery to the customer, who could hardly hope to receive a fresher product.

Overhead gas-fired radiant heaters, by Radiant Heating Ltd., are provided in this department. They are sited over the lines of wrapping machines to provide much-needed warmth for the operators during cold weather.

At this point the loaf leaves the premises of the Wonder Baking Co. Ltd., the time taken from the mixing of the dough to the wrapping of the bread being approximately 8½ hours.

As has been seen, gas plays an important part in this process, which is emphasised by the fact that the meter house outside has a 15,000 cu.ft. meter.

The Company maintains a continual check on gas consumption, through daily readings of all meters, each of the five ovens being fitted with an individual meter.

These are all rotary meters manufactured by Parkinson Cowan Gas Meters Ltd. By this means the performance of each oven, in respect of gas consumption relative to the amount of bread passing through, is under continual observation.

The Wonder Baking Company's Wood Green plant is the headquarters of the Company in the London area, but a visit was also made to another of the Company's plants where gas-fired equipment was seen in use.

This plant, which is situated in the South Eastern Gas Board area, was, at the time of the visit, taking gas at

the annual rate of 120 mill. cu.ft.

The equipment seen in operation consisted of two Baker Perkin's Uniflow ovens of six sacks per hour capacity.

These differ from those at the other plant visited in that they are of the swing-tray type, which are specially economical on both manpower and fuel.

The oven, a double-lap type, operates on a baking time which varies between 35 and 40 minutes, depending on the type of bread being baked, and at temperatures in the range 400°-500°F.

Two burners are fitted to each oven, firing into combustion chambers below the swinging trays. As in the case of the ovens at Wood Green, a jet of live steam is piped to the first section of the oven to give the top of the loaves their characteristic brown colour.

An important point noted at this plant, however, was that the steam, including that for the final prover, was provided from gas-fired boilers.

There are two of these, of the Cochran Sinuflo type, and fully automatic in operation, one being normally in use and the other on standby.

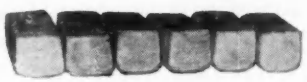
These boilers also provide steam for hot water and for central heating.

With baking plants of this size and efficiency in various parts of the country, the Wonder Baking Co. Ltd. is well placed to supply bread to its many customers, who include not only numerous trade outlets but also Services establishments, hospitals, schools and other public institutions.

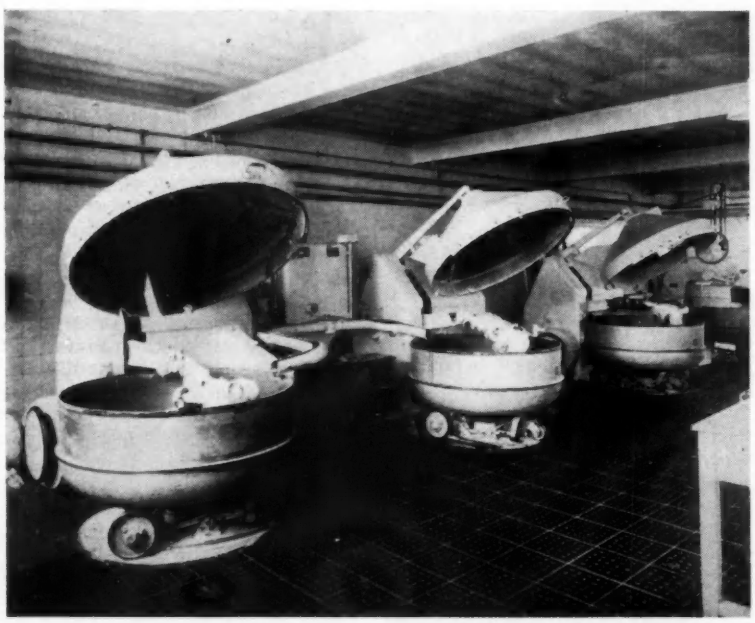
This demands a distribution network of great complexity. This is all handled by the Company under a carefully planned system whereby bread is moved to the customer from the nearest convenient baking plant.

Bread is not one of those products which can be produced for stock, but the essence of this trade is that it must be turned out on a continuous process, so that the customer receives his supply as soon as possible after it leaves the oven.

The one aim of the Wonder Baking Co. Ltd. is to plan their operations in such a way that their well-known product is distributed regularly and rapidly through the efficient channels they have set up.



For this to be possible, the various products must pass smoothly through the ovens and, by ensuring this, the gas industry is playing an important role.



In these machines the dough is mixed, using 560 lbs. of flour and appropriate quantities of yeast, salt and water.

Kitchen Equipment Costs

by 'GAStronome'

THERE is little difficulty experienced in assembling an array of items of cooking and food service equipment, for kitchens are to be found everywhere fitted with the complete variations in one of the many forms accepted by the caterer on the advice of the kitchen planning engineer, or on the recommendation of the manufacturer or the factor.

A fairly large number of these installations can be classified as good examples of planning and of specification, a larger number can be assessed as suspect either in planning or equipment, often both, because planning and specification are dependant upon one another, and some are, quite frankly, poor—either from ignorance of the problem or by overselling equipment.

Facing the problem

This contribution sets out to face the problem as it should be, and not to follow so-called set plans, or meekly adhere to principles laid down for the guidance of those without the basic knowledge of how a kitchen works or, indeed, of how it should be designed and fitted.

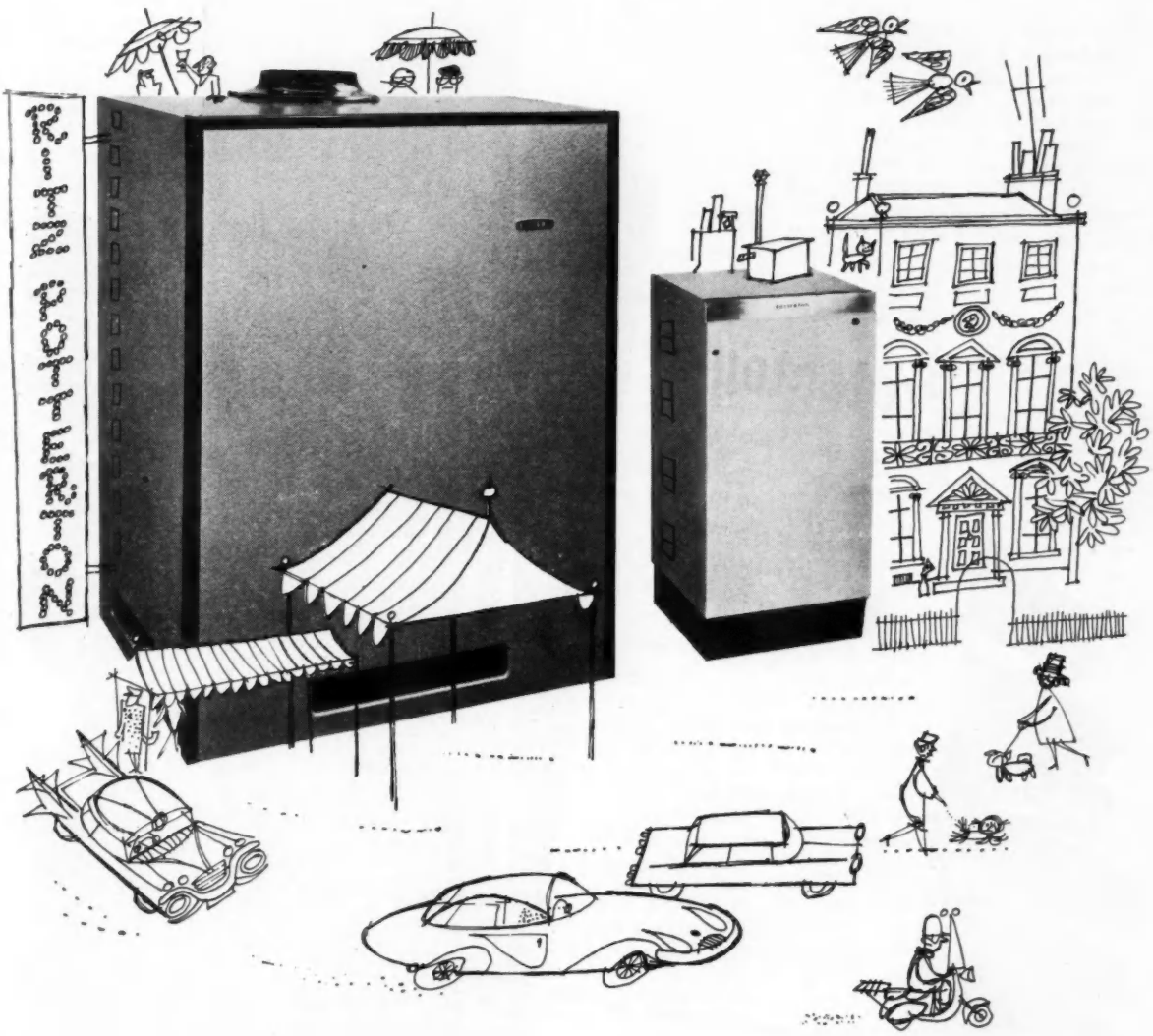
The attempts that have been made to try to 'blue print' according to numbers of meals, have not proved very successful, providing kitchens far too large in area, and with equipment that has an unjustified influence on the patterns of the menu—an influence that has eventually been accepted by many as the only way and, of course, it is not so.

Specialist equipment

It is often asked, why is it necessary to have a wide range of equipment for large scale catering? It is because several cooks are usually employed and are detailed to do specific work, which may be of specialist nature and, in turn, require specialist equipment in cooking.

For example, a pastry cook would have separate ovens and boiling table, maybe a steaming oven. Again, a vegetable cook would use steaming ovens, boiling pans and frying pan ranges.

It is, of course, a good thing to have



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those specialist items of equipment, they also are used to relieve congestion in the cooking area of the kitchen, but it is so often true to say that this dispersing of equipment is overdone, it is unnecessary, takes up space and is expensive in capital costs.

Fuel costs are usually higher when a number of appliances are used and the capacity output of food is not taken up completely, as is almost bound to happen as the number of meals served and the menu varies from day to day.

A wise plan

It is a wise plan to build up a kitchen for any number of meals from the range, by which is meant the ovens superimposed by a boiling top of solid or open burner design. This cooking range, so very aptly named the hub of the kitchen, can be used for practically all methods of cooking and can incorporate salamanders, deep fat fryers and deep fry tops, it is adaptable for any number of meals and with proper kitchen organisation for the team of cooks.

It is always sound reasoning to prove a point by example. Therefore, let us assume two cases and see the amount and type of equipment installed in each. First, a staff restaurant kitchen cooking 100 meals. This number can be catered for quite easily in a double oven cooking range, provided that the ovens are of 6 cu.ft. each or over, and that the boiling top be of 10 sq.ft. or more.

Important point

The important point to decide is that the top should be of sufficient area to accommodate all the cooking pots necessary for all variations of menu that are likely to occur.

Should the area of the top be unable to do this completely, it is not at all necessary to specify a third unit of the range, the choice lies between a boiling table, which is in fact another unit of the range without the oven, or a stockpot stove.

Stockpot stoves always seem to assume the role of the Cinderellas of the large-scale cooking equipment world, and yet they are probably the most adaptable to all the various cooking methods.

They measure from 18-in. to 24-in. square, are fitted with double ring or treble ring burners, each ring separately controlled, so they are most flexible in heat input; and it is flexibility of heat that makes gas-heated equipment so acceptable to the cook.

The stockpot stove designed originally to accommodate stockpots of 20 to 40 gallons, can be used for boiling potatoes, green vegetables and meats, the cooking of soups, stews and for deep and shallow frying.

It will accommodate a portable steaming oven. The stockpot stove is about right in height from the floor and is fairly low-priced, it is not recommended that it should displace the use of a deep fat frying pan or a steaming oven for that matter, but it does prove its use as a maid-of-all-work in the kitchen, capable of use with the appropriate pots and pans when specialist equipment is not required or cannot be accommodated.

Therefore, the 100-meal kitchen would operate quite effectively with the double oven range as specified and two stockpot stoves. To provide ideal conditions of work and for fast efficient cooking a deep fat fryer of the 'Vee' shape pan design would occupy no more floor area than one of the stockpot stoves and is to be recommended where deep frying is used daily.

A salamander

The only additional appliance needed would be a medium-sized salamander and could be fitted on the pot rack or on wall brackets above the stockpot stove.

A wide variety of menus can be cooked on the equipment thus specified. If anyone is in doubt about that let him visit the kitchens of the commercial restaurants in any large town, where space and costs have to be carefully considered. It really is only a question of kitchen organisation, to plan the amounts of food required, the dispersal of it to the various pots and pans and allocation to the equipment with intelligent timing.

We shall now consider a larger kitchen, cooking say 250 meals. The equipment required need only be a 4-oven range, based on the same data as that of the 100-kitchen augmented by a deep fat fryer, a steaming oven, a stockpot stove and a salamander.

In this case, the stockpot stove resumes its original purpose that of accommodating a stockpot of 20-40 gallons capacity, and can also be used for boiling large amounts of vegetables, thereby relieving the top of the ranges.

The deep fat fryer is now a 'must', of the 250 meals a large portion can be assumed to have fried foods and is likely to bring the fryer into use for at least two hours on peak days.

The cooking output of the frying range should preferably be in the order of 70 lb. of potatoes cooked from raw, per hour per pan.

On this recognised standard basis other foods such as prepared meats and fish will be cooked in good time. It is not good practice to use frying equipment of large holding capacity to produce the output as that usually means that the foods are held in the cooking fats for much longer periods than is necessary giving indifferent cooking results and keeping the cook in attendance on the fryer for a long time.

Steaming oven

The term 'per pan' can be taken as one of an area approximately 18-in. by 18-in. deep in design with a quick acting thermostat.

The steaming oven should be of a capacity of about 4 to 5 shelves each of dimensions approximately 18-in. by 18-in. by 3-in. Shelves of these dimensions can hold food, such as puddings, of 50 portions, thus the total shelves will provide 200-250 portions. This is suitable for 250 meal kitchen, half of the steamed puddings could be savoury and the other half sweet, blending in with the main menu.

The salamander should be one of the larger sizes available; it may be made up of two or more of the smaller types, such as the Stott 225 with separator plates.

Kitchen design may place this as a free standing item of equipment, economy in space and ease of working could place it over the range or on the pot rack, such practices being fairly common, particularly with the solid plate ranges with heavy duty pot racks.

A bain marie

The only other item of cooking equipment that is desirable, if space can be found for it, is the open bain marie. This is used in close proximity to the cooking range and accommodates the food that has already been cooked, or is held in readiness for final processing.

It is helpful to the cook in industrial kitchens, whose main problem is to cook a large quantity of food and to keep it in first class condition right up to serving time.

Equipment based on these lines will give a complete service of cooking with sufficient flexibility to accommodate the variations in menu that do occur from day to day. Being gas-heated, it will be certain that all cooking is on time and enable it to be so organised that all hot items of the menu are completed at the last possible minute.

Streamlined catering at Morris Motors

by Margaret Parkinson

THE most up-to-date canteen in Oxford, serving 450 meals in 10 minutes, has recently been opened at Morris Motors, Cowley.

The new building, which cost over £175,000 to build, is the first to be specifically designed as a Morris Motors canteen. Other canteens at the motor works were converted from existing buildings.

A streamlined, gas-operated kitchen, planned to serve 1,500 employees each lunch-time, is one of its three principal features The other two are its restaurants, for about 500 junior staff downstairs, and 1,000 works employees on the first floor.

New policy

The streamlined kitchen introduces a new policy in canteen cooking at Morris Motors. Mr. H. A. Smith, Manager for Peter Merchant Ltd., industrial caterers, plans wider lunch menus—to include Wiener schnitzels, trout, and individual grills.

Ambitious menus and ultra-swift service are made possible by the spacious, considered planning of the kitchen, by its new equipment, and by its staff of seven cooks, headed by Mr. S. J. Harvey, tall jocular chef who has many years' experience.

Divided kitchen

The kitchen is divided into a central cooking area, and three bays for baking, the preparation of fish and meat, and the washing and cutting of vegetables.

Easy cleaning is ensured by stainless steel cooking equipment, white tiled walls and red quarry tiles on the floor. Air conditioning enables the staff to work more efficiently.

In the central cooking area the stainless steel equipment stands in neat rows. It was installed by the manufacturers and suppliers, Benham and Sons Ltd.

Close to the kitchen entrance from the junior staff restaurant are 10 elevated roasting ovens, two of which are capable of roasting 50 chickens each.

Five steaming ovens will jointly accommodate 1,250 portions of pudding at once and each will take up to 56 lb. of potatoes or other vegetables. An eight-unit solid top boiling table is used for heating a variety of foods.

Beyond the steaming ovens, at the far end of the kitchen, are the 40 gal. boiling pans. Enormous enough to accommodate one of Ali Baba's thieves, one is used for custard and sauce-making, and three for root vegetables.

A four-unit deep fat frier, which heats a mountain of chips in 10 minutes, and other equipment are fitted with extraction hoods. Fresh air is blown in through ducts in the ceiling and carried out when 'cooking-soiled' through air shafts in the hoods.

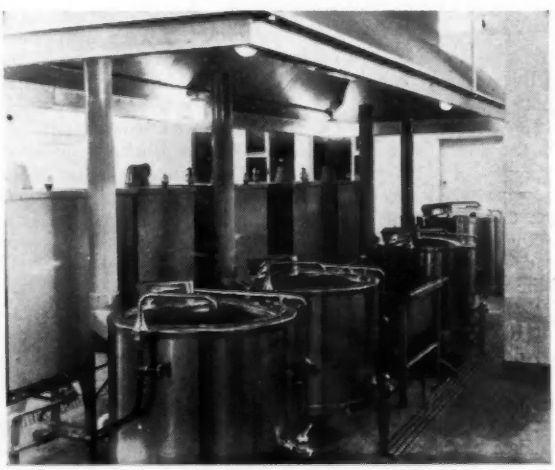
Other equipment in the central cooking area includes two large stock pot units and three Potterton boilers which supply hot water.

800 cakes a day

Eight hundred cakes a day are baked in the bakery bay by Mr. Frank Lane, confectionery chef, and Mrs. Edith Draper, his assistant. Pastry for meat pies and fruit tarts is also prepared.

Their equipment includes a proving oven and cooling unit keeping puff

A view of the roasting and general purpose ovens, of which there are ten in total, in the new streamlined canteen at Morris Motors.



The vegetable boilers.

pastry cool. A pie blocking machine, also gas-operated, moulds pastry into the right shapes for pies and other confectionery.

'The baking equipment is very convenient,' says Mrs. Draper. 'I find it very economical and am accustomed to gas at home.'

HOT CUPBOARDS

The works employees' restaurant upstairs is fitted with hot cupboards and four suites of bain maries, mainly for soups and rice, behind its service counters. They ensure that food brought up on a service lift from the kitchen is kept hot until it is required.

The total length of gas-heated hot cupboards and bain maries which have been supplied by Benhams is about 200 ft.

An eye-level grill is the most ambitious of the behind-the-counter equipment. It will be used to provide an individual grill service.

Mixed grills are already one of the most called-for-items on the menu. Another deep fat frier supplies the chips which are fried, according to Mr. Smith, 'virtually in seconds.'

Two tea and coffee sets, plus two more in the junior staff hall, provide hot drinks. Tea is made in three 30-gal. tea boilers.

The total gas load which supplies the cooking equipment both in the kitchen and restaurants is estimated at 8,750 cu.ft./hr. New 6-in., 4-in. and 3-in. pipes to carry the gas supply and a 9,000 cu.ft./hr. meter were fitted by fitters of the Southern Gas Board, Oxford Region.

The efficiency of the kitchen and its freshly-cooked, pre-plated food, is complemented by the colourful, pleasant atmosphere of the two restaurants. Large plate glass windows cast light on to Formica-covered tables and matching chairs in reds, yellows, blues and greens. The floors are Marley-tiled.

NO 'SNAGS'

Mr. Smith with his varied experience of hotel and canteen kitchens, came to the new kitchen expecting to find serious 'snags,' but he has been unable to find them.

He approves of the stainless steel finishes on the equipment and rates cooking performance as 'outstanding.' He adds: 'Gas-operated equipment is quicker for cooking—you do not have to wait for everything to heat up.'

Mr. Harvey has found no kitchen in Oxford to surpass it. Gas is his favourite fuel for cooking purposes because it is dependable.

'In all my years' experience as a cook I have never known it to fail,' he says. 'It is the most reliable form of heat you can get.

LUNCHERS' VIEW

'It is also the most economical because you can reduce or increase it as you require.'

What do the lunchers think of the new canteen arrangements?

The best recommendation of all lies on Mr. Smith's desk—a letter from a group of the junior staff.

'We, the undersigned, would like to place on record our appreciation of the amenities provided in the junior staff hall of the new canteen; also of efforts being made by the manager and staff to make our lunch break a pleasure instead of a mere necessity.

'We find that the food offered is really palatable while the choice of dishes makes all the difference between just eating and enjoying one's food . . . .'

Mr. Therm is proud of the part he plays in helping connoisseurs of catering everywhere.

Nitrogen and hydrogen plants for metallurgical processes

THE Incandescent Heat Co. Ltd., Smethwick, Birmingham, built their first nitrogen plant in 1945 after many years' experience in exothermic plants for bright annealing. Since then over 800 special atmosphere plants have been built in many parts of the world.

As carbon dioxide and carbon monoxide are eliminated, nitrogen plants are increasingly used in many metallurgical processes. Several different types of nitrogen plants have been designed to give either pure nitrogen (with less than 10 p.p.m. O_2 and 20 p.p.m. other impurities) or nitrogen with controlled quantities of additives (CO and/or H_2).

Whereas town gas, coke oven gas and l.p.g. are the fuels most commonly used, there are also Incandescent plants which operate with blast furnace gas, light gas oil and kerosene.

More recently, hydrogen plants have been developed for decarburising steels, metal reduction and chemical processing. Hydrogen is produced from l.p.g. or in less pure form from coke oven gas with N_2 as an impurity.

A complete range of gas purifying equipment has been developed including dryers for air and all gases, endothermic gas generators, large-scale carbon dioxide plants and desulphurising equipment.

A new bulletin, No. V68, entitled 'Nitrogen and Hydrogen Plants,' has been issued. Plants are described in this leaflet as follows:
N1, standard nitrogen; N12, Hy-Nitrogen plant; N13, Hy-CO nitrogen plant; N14, super purity nitrogen plant; N2, standard nitrogen from blast furnace gas; N21, Hy-Nitrogen from blast furnace gas; N3, Hy-Nitrogen from hydrogen and cracked ammonia; H1, hydrogen plant.

CONTINUOUS-CHECK FLAME SAFEGUARD

A FLAME safeguard unit that checks its own complete circuit once every second is announced by Honeywell Controls Ltd. It is the first continuous-check flame safeguard unit available in the United Kingdom.

A self-checking circuit disconnects the flame rod and checks all components every second. Such checking has hitherto been incorporated in combustion safeguards during start-up or recycling only.

The new type, known as the R 4075 Protectoglo, will cause immediate shut down and sound an alarm if the sensing signal, amplifier or related circuitry fails at any time while burners are operating.

The R 4075A Protectoglo is additional to the W613 type announced earlier this year.

Gas-fired heating and ventilation at White City Stadium

FOR the heating of the new viewing stand, known as the Olympic enclosure, recently opened on the east side of the White City Stadium, the Greyhound Racing Association decided on the use of gas as the heating medium.

Owing to the intermittent use of this enclosure, probably only for two or three occasions a week, and the need for rapid heating, a fresh air supply system was selected for the various areas incorporating gas-fired air heater batteries.

As it was also essential to prevent condensation on the approximately 340 ft.-long glazed viewing front, the warmed fresh air for this area had to be introduced directly beneath the glass, and no recirculation could be employed.

Two main plants

The system, which was designed and installed by Heat and Air Systems Ltd., of 172, Buckingham Palace Road, under the general direction of the architects, Begbey and Meers, of 12, Pancras Lane, E.C.4, consists of two main plants.

The larger one, for the second floor main viewing area and lounges, delivers 18,000 cu.ft. per min. of fresh air from a ground floor fan chamber up into the space through riser ducts with lateral branches connected to diffusion outlets.

Smaller plant

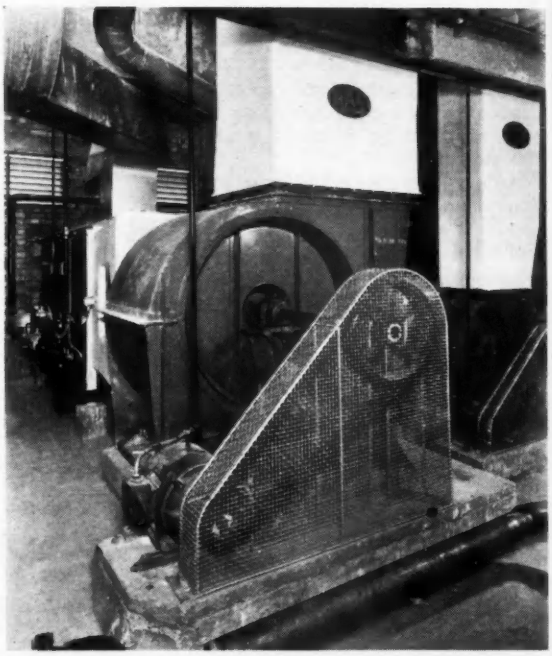
The smaller plant is to serve the first floor lounge area and is of 4,000 cu.ft. per min. capacity. Both plants incorporate H.A.S. indirect gas-fired tubular air heater batteries of the firm's well-known standard design and of capacity capable of maintaining the spaces at 65°F. with a lowest fresh air intake of 30°F.

The 6,000 cu.ft. per min. balance of air for the second floor is discharged through ceiling diffusers of the KNO-DRAFT pattern over the bar and tote area at the back of the viewing stand, and the air for the first floor lounge is similarly introduced.

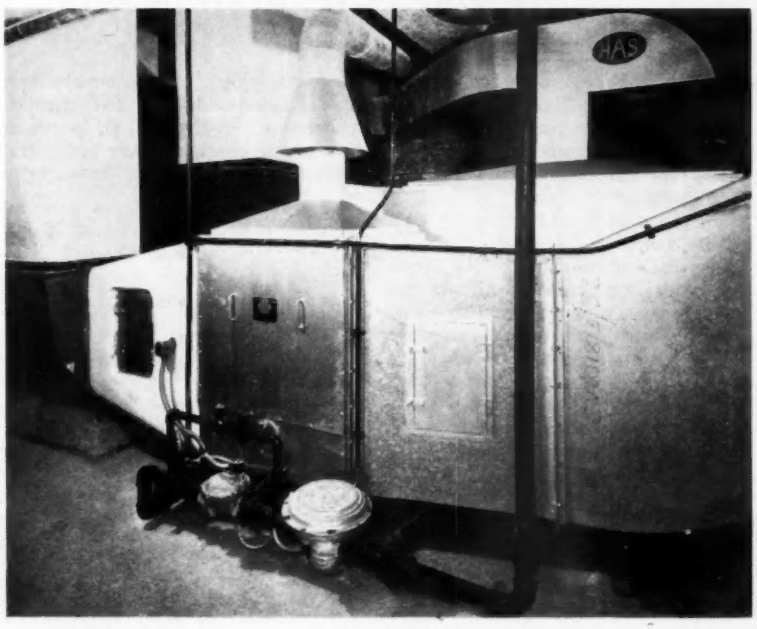
The gas-fired heaters are controlled by thermostats situated in the first and second floors respectively, and each heater has a fully approved set of electronic flame-failure and safety controls with Radiovisor/H.A.S. flame conductance system with spark ignition and Perl type gas valves.

Maximum available gas consumption totals approximately 4,500 cu.ft. per hour, but the actual consumption depends on weather conditions and occupancy.

A gas-fired hot water boiler, Potterton 3 Series Rex, rated at 625,000 B.t.u. per hour, was also installed to serve radiators for ground and first floor office accommodation.



Main fans and gas-fired air heater for second floor heating and ventilating system at White City Stadium.



Gas - fired air heater, fan and duct connections for the first floor.